

RAPA NUI JOURNAL

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Rapa Nui Sculptures Tour the United States

Eighteen wood works of art by master sculptor Bene Aukara Tuke Paté began their tour of the US with a one week engagement at the Banco de Chile in New York City. Sponsored by the Banco de Chile and LanChile Airlines, the exhibition of traditional Rapa Nui carvings drew such rave reviews, that it was extended to a second week.

Among the many outstanding works of art on exhibit were a superior carving of the *moai Hoa Haka Nana Ia*, a deep toned *tahonga*, various styles of *rei miro*, a *pa'a pa'a*, and an unusually stimulating *moai kava kava* with two heads. Bene Aukara's pieces are all based on traditional Rapa Nui designs collected by explorers and visitors to the island before the turn of the century. Today the originals can be found only in museums. Each of these exquisite pieces is a highly finished work of art. He is considered to be the consummate carver on the island today working in traditional design. The brochure which accompanies the exhibit states, "Bene Aukara's sculptural pieces have achieved both the perfection of line and the fine finish of the traditional carvings made in pre-missionary days. He has studied the details of [those] ancient works... [and] added his own personal touch and style."

The next scheduled formal appearances of Bene Aukara's sculptural pieces will be this summer in Old Bridge, N.J. They will be placed on auction in Laramie, Wyoming in September to benefit the Mulloy Research Library.



Mr. Alan Davis-Drake, Dr. Joan T. Seaver and Dr. William Liller
at the Bene Aukara Exhibit in NYC.

The Anthropological Background of Easter Island • An Outline •

José Miguel Ramirez Aliaga

When Western explorers discovered Rapa Nui, on Easter Sunday 1722, thus giving rise to its name Easter Island, this small volcanic island was already in the decadent phase of

a highly developed culture which existed for more than a thousand years. Thus one can understand why the Europeans were of the opinion that the natives who approached the ships with such friendliness would not have been capable of constructing the hundreds of giant altars, *ahu*, which existed along the coastline, nor the 800 or so stone statues, *moai*, which were either placed on top of the altars or lay abandoned in various stages of construction in their quarry.

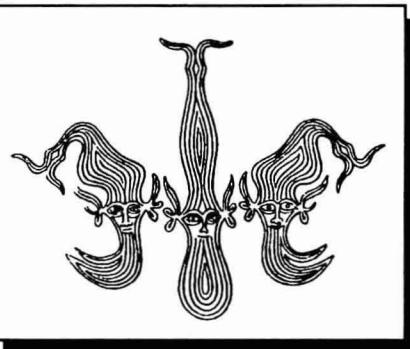
Nevertheless, oral tradition records outstanding moments in Rapanui history, beginning with the colonization of the island by Hotu Matu'a, the folk hero and

deified ancestor of the Rapanui. These traditions also tell of the settlement of a true civilization with a rigidly organized class structure and many advanced developments—among them writing. Along with their own refined cultural baggage they also brought the plants and animals necessary for survival.

These first settlers proceeded with the intense cultivation of a variety of tropical plants, both for food and other uses. The only domesticated animal was the chicken. There were restrictions (*tapu*) regarding marine resources, which were controlled by those of high status (members of the Miru clan.) Tuna, turtles, and probably seals, dolphins and other marine resources of high economic value, were reserved exclusively for the aristocracy.

Intensive horticultural production was essential to sustain a growing population and a social order which required all surplus to be properly apportioned to those of high status: chiefs (*ariki*), priests (*ivi atua*), possessors of ritual knowledge and arts (*maori*), and warriors (*matatoo*).

The justification for social order was deeply rooted in Polynesian culture, a system that, by deifying great men (either those who were direct descendents of the gods, or those elevated to a high level due to their prowess as providers or



Rapa Nui spirits. This design was traditionally carved on the top and extended down the sides of the head of the wood *moai tangata*.

Continued on page 2..

Background... continued from previous page

warriors) gave them a supernatural aura—an effective leverage for obtaining and managing the distribution of resources. They could recruit the enormous manpower required to construct monumental religious architecture and control worship and the preservation of scientific knowledge. A belief still strongly held in Polynesia speaks of a world full of supernatural power, the key to which is *mana*. *Mana* places its possessor in a special category, protected and isolated from the common man by laws of *tapu*.

Upheld by privileges derived from the belief in *mana*, the chiefs maintained a self-justification for a social, economic and political order centered around one basic aim: the perpetuation of that order through ancestor worship. The most marked expression of this worship is found in the *ahu*, with *moai* representing particularly outstanding ancestors.

It is estimated that the Rapanui civilization began to develop around the IV century A.D. The first confirmed date is about 700 A.D., when Ahu Tahai was being built—already showing the first step in a local development from its Polynesian prototype, the *marae*. The climax of this process was demonstrated around 1200 A.D., with the building of Ahu Vinapu and about 1445 with Ahu Akivi.

The construction of these monuments required thousands of man-hours of labor, demanding an ever greater effort in a race for prestige and power between those who ordered their construction. Successive additions increased their size, achieving in the case of Ahu Tongariki a length of 160 meters. At Ahu Te Pito Kura, a *moai* reached a height of 10 meters and a weight of 80 tons. In the statue quarry itself lays an abandoned, unfinished *moai* which weighs twice that amount, a grand example of one of the many ambitious projects these people were engaged in when catastrophe struck.

The social setting in which these monuments developed has been described elsewhere: the social organization of chiefdoms, high density population, different groups within their own clearly defined territorial limits, and the centralized control of religious and eco-

nomic activities. The system was based both on continually increased production and a supernaturally ordained authority for focusing the manpower necessary to carry out the demanding work load.

The political and economic autonomy of these groups may explain the burgeoning clusters of ceremonial centers. The periodic repetition of ancestor worship at these sites reaffirmed the groups' ownership and rights over the territory within their control.

Following a hypothesis of this nature, one can appreciate the function of megalithic expressions as part of the dynamics of an adaptation process, giving rise to behavior which enhanced social cohesion, stability and order, and ensured the more organized and united groups' access to resources. They were now better able to exert their rights over agricultural land. Probably this process became pervasive on Easter Island due to environmental restrictions. Thus the compulsive emphasis on worship and megalithic construction became the best way to maintain the social order under unstable environmental conditions.

Somehow, the dynamics of the process ended with the collapse of the system, resulting in cultural changes which, according to both tradition and archaeology, occurred around 1680, although later corrections indicate a general date around the 16th or 17th centuries. By that time the society was in the final phase of a crisis caused by excessive increase in population (15,000?) with the consequent over-exploitation of the environment and the exhaustion of natural resources.

Rapa Nui is one of the most surprising examples of the blossoming of a culture in absolute isolation within an extremely limited territory. In this situation, the problem of demographic growth was particularly difficult to overcome because of the impossibility of acquiring new territory. When the crisis came (in the absence of any spectacular technological advances or a drastic decrease in the number of inhabitants) there needed to be a radical change in production strategy to adapt to environmental factors. Islanders had to resort to

more conservative technology than the usual slash-and-burn method; they used stone shelters for their crops (*manavai*) and chickens (*hare moa*). But the prime need was for a change from a demanding redistribution system, suited to an environment capable of withstanding intensive exploitation over a long period, to a new, reciprocal system which demanded little and used the same irregular labor force once engaged in the competition for statues (which usually resulted in high consumption or waste) and still exist under very delicate environmental conditions. A change of this kind would necessarily have repercussions on the entire social, political and religious structure.

The archaeological and ethnographic record shows important changes in subsistence and settlement patterns, as well as warfare, cannibalism, and the destruction of *ahu* and *moai* as symbols of the old order. The new level of adaptation shows the coming to power of the warrior leaders (*matatua*), their gods (*Makemake*) and ceremonies (*tangata manu*). The new forms of worship were strongly related to fertility and "first fruits" ceremonies. The leadership began to alternate between groups from year to year, depending on a ritual race for the egg of the *manutara*. The winner was consecrated as the sacred birdman (*tangata manu*) and his group was accorded a series of privileges for a year.

The Rapanui were involved in this unstable situation when Europeans appeared on the horizon.

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Experimental Archaeology in Rock Art

Sidsel Millerstrom

After documenting thousands of petroglyphs and pictographs in the Marquesas Island, including motifs of human-like figures and faces, animals, and geometrics, it made sense to try to recreate some of the designs in order to better understand the time and physical energy expended to manufacture prehistoric rock art in this Eastern Pacific archipelago.

On our last field trip to the islands in May 1988, some of the crew members participated in an archaeological rock art experiment in Hatiheu Valley, Nuku Hiva. Our tool kit was relatively unsophisticated, consisting of pointed beach stones suitable for pecking. When they broke or wore out, new stones were readily found on the beach. None of the stones were modified by us.

The author's first attempt was to peck a human "stick figure" on a flat dense basalt stone. An outline was first lightly drawn on the surface with a sharp rock. It appeared natural to take advantage of a small circular depression in the stone for the head of the figure. A hammerstone was used periodically for more strength. The grooves were abraded with the same tool. Finished, the figure measured 17.5 x 10.5 cm. It took 45 minutes to manufacture; a minimum of energy was expended.

Inspired but unsatisfied by the first attempt, we targeted a large beach boulder located between the ocean and the road leading into the village.

This boulder, of vesicular basalt, was similar to numerous petroglyph stones found in all of the Marquesas Islands. With a surface not entirely smooth, it offered a challenge to us. Gilles Cordonnier, our field photographer and a professional draftsman with natural artistic ability, pecked a 5 cm. diameter cupule in 15 minutes. Cup-shaped depressions are often associated with petroglyphs and other architectural remains and can be seen in great number in the islands.

The author pecked a pair of human-like stick figures (see photo). The first, a male, measured 59 x 40 cm. Lines were

3 cm. wide, and work time was 45 minutes. The second figure, a female, measured 40 x 30 cm., with line width of 2.5 cm. Depth of line for both was .5 cm. This figure was finished in 30 minutes. None of the designs were abraded because the grooves turned

out smooth and straight. A natural line in the rock was used for one of the legs of the female figure. As the boulder was partially submerged at high tide, we sat on top of the rock and worked from that angle. Thus the figures on the ocean side appear upside down to the observer.

Edmundo Edwards began a carving of an Easter Island type birdman figure in bas relief. This project was not finished before we left the island, thus work time was not recorded.

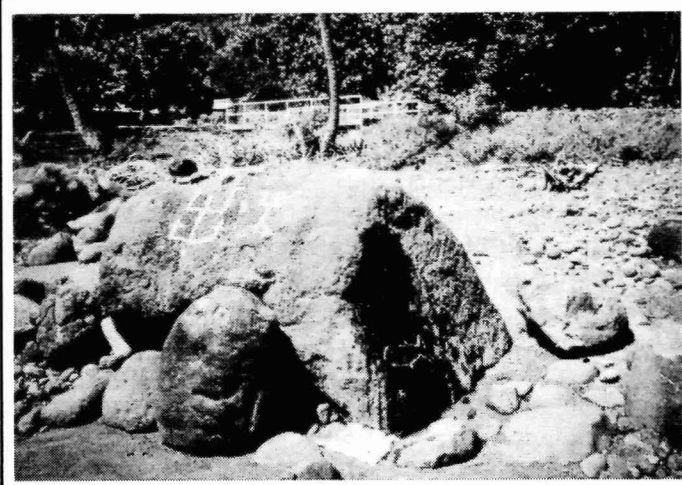
The result of this experiment was—first and foremost—a new and different appreciation for the craftspersons who created the prehistoric art. Our work indicated the following:

1. Straight lines and circles were difficult to make without practice. Thus this experiment suggests that most of the ancient petroglyphs with uniform lines may have been created by someone with experience in this particular field.

2. Relatively limited physical energy was exerted in making simple stick figures. Work time was shortened with practice. A cupule was especially easy to make in a short time period.

3. It appeared natural to take advantage of existing depressions, lines, and cracks in the rocks. We have noted that prehistoric artists did the same.

4. It was difficult, if not impossible, to detect the difference between pecked



and abraded lines and pecked lines only. In our experience both types of grooves felt the same when running a finger along the grooves.

5. Creating the petroglyphs seems to be done from the position most comfortable to the artist. Several rock art panels recorded by our team have figures in an upside down position.

6. It appears as if a smooth rock surface was not the main criteria for creating rock carvings. Many panels have uneven surfaces, and many flat and suitable areas are left untouched, perhaps to be used for a later occasion.

Of great interest to us when we return this summer is to observe the extent of patination to the carvings. When the lines were fresh they had a light, contrasting color as compared to the matrix of the rock, and stood out like raw and open wounds. The author had a sense of having violated or even vandalized the boulder in the name of archaeology.

Editor's note: Mrs. Millerstrom assures us that there is no possibility of future generations mistaking the team's carvings for "ancient Marquesan rock art." The subject matter is decidedly 20th century. The rock she worked on was scheduled to be moved to the front of a nearby restaurant.



Karl Schanz's Calendar Stone Part 2

William Liller

The discovery by meteorologist Karl Schanz of a series of engraved lines on a huge rock by the runway of the airport in Mataverí did not go unnoticed and unrecorded. Thanks to Chilean journalist Carmen Merino, the rock, and several smaller ones, were briefly described in a pair of newspaper articles that appeared in 1966. (See *Rapa Nui Journal*, Vol 3, No 1, p. 5 for translations of these articles.) By chance my wife and I encountered Sra. Merino in Viña del Mar where we all happen to live, and later Sra. Merino gave me a 8 x 8 inch glossy photograph, reproduced here, that she had taken in 1966 showing distinctly the lines which Schanz claimed indicated the directions of sunset at important times of the year.

According to the report, Schanz noticed that the inscribed lines "indicated the direction of the sun descending into the ocean on the longest and shortest days of the year." Furthermore, he stated that he was able to prove that lines on the rocks indicated both geographic north and magnetic north. Schanz argued that the large rock, "the size of a two-story house", should be preserved *in situ*, but lamentably, it was too close to the runway and the airport constructors said that it must be destroyed.

Sra. Merino's second article offered hope in the solution of the dilemma: a way to cut off the inscriptions had been found, and they would be stored in the Sebastian Englert Museum.

Earlier, Georgia Lee, my wife and I had asked various knowledgeable islanders—Juan Edmunds, Sergio Rapu, Leonardo Pakarati, Urbano Hey, José Fati, and others—if they could tell us what became of the relics, but none knew or remembered. And nothing that could be construed as a "calendar stone" could be located in the extensive museum collection.

The obvious next step was to try and locate Schanz, and I sent letters to meteorology offices both in Chile and in Germany. Finally, late last year, I received a note from the head meteorologist at the international airport in Santiago saying that Schanz was living in Santiago. An address was provided and I

wrote him immediately. (His name was unlisted in Chilean telephone books.)

The answering letter brought a mixed bag of information. The response, written in Spanish by Andres Schanz, one of Karl's sons, reported that the meteorologist, now 86, was in a precarious state of health and could no longer remember details of the discovery. However, the son had found a letter that his father wrote to him dated March 28, 1965. About the inscriptions it said, in part:

"Emanating from a north-south line are lines in the direction of sunset on the longest and shortest days of the year. Between them are other lines that divide the year into 30 equal sectors (months). Also, on another rock I found two compass roses indicating winds, with each quadrant divided into 3 sectors."

Schanz's son continued by recalling that the construction firm (Longhi) was having problems finding sufficient landfill and was ready to break up any large rock they came across. The younger Schanz wrote that shortly after his father had made his measurements, he had surprised personnel of the construction firm in the act of boring holes in the large rock into which sticks of dynamite were to be put. After a heated exchange of words, the constructors brusquely resumed their destructive task, at which point "my father went into his house and returned 'with pistol in hand' causing the terrorized constructors to flee."

Schanz then went directly to the island governor Arndt Arntsen Pettersen who confirmed that the rock was in the "area of security" but he assured Schanz that after Schanz finished making his measurements, it would be moved to another site.

The next day, while Schanz was away from his house for a brief period, the construction firm resumed their destructive business, and before Schanz returned home, a tremendous explosion blew the rock to smithereens—and with the blast went all the windows in Schanz's house. End of saga.

What became of the smaller rocks still is not known. Early this year, archaeologist Toru Hayashi kindly made yet another search of all the artifacts in the collection at the Englert Museum, and again came up empty handed. Perhaps a thousand years from now archaeologists will find these rocks buried beneath the airport runway.

But Sra. Merino's photograph shows the lines clearly, and these can be analyzed. There are, however, two important unknown quantities: the original

orientation of the rock, and the plane of the engraved surface. The photograph seems to have been taken from a vantage point almost directly above the surface (I will assume this later in this article), and when I asked Sra. Merino how she was able to take such a picture, she explained that the engraved surface was not horizontal but inclined at a moderate angle—and by carefully considered gestures, she indicated an angle of 20 or 30° from horizontal. Neither was this portion of



the rock as tall as "a two-story house"; she had been able to take the photograph from a standing position.

This last piece of information raised

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an important question: how can the numerous lines on this inclined rock all point towards the horizon? The answer is simply that they cannot. However, it is entirely possible that owing, for example, to the erosion of earth around the rock, the rock may have tilted over slightly. This we will assume happened at some time in the past.

If we proceed under the reasonable assumption that one of the extreme emanating lines pointed in the direction of a setting solstice sun, then we can predict what was the original orientation of the rock. To begin with, it is possible to calculate precisely that several hundred years ago, from Mataverí at the time of the two solstices, the sun would have set over the ocean at azimuths of 242.9° and 296.2°. * (It takes nearly 700 years for these values to change by 0.1°.) Due west, the direction of the setting equinox sun, is 270.0°. If the long principal line seen on the photograph was originally oriented towards azimuth 322.1°, then the first of the subsidiary lines would have pointed toward the setting winter solstice sun at 296.2°. The orientations of these lines and all the others, as measured from the photographs, are as follows

246.3°	256.8°	267.4°	292.5°	322.1°
248.7	265.9	270.1	296.2	
249.3	268.7	277.9	(249.2)	339.1
250.7	264.7	286.7		177.5

These values, given to the nearest tenth of a degree, are probably accurate to no better than one degree since none of the lines appears perfectly straight, and some are confused by the chalking of the lines that was done, often haphazardly. The value given in parenthesis is of a fine scratch at the bottom of the pattern that may or may not be an inscribed line. The values in the final column refer to the principle line (in bold) and the two lines joining it.

It is interesting, if not significant, that the longer of these last two lines, the one indicating an azimuth of 177.5°, points to within 2.5° of the "north-south line" that Schanz refers to in his letter to his son.

We see that the azimuth of the first line listed comes closest to matching that of the direction of the setting summer

solstice sun, namely an azimuth of 242.9°. While we can hardly say that the difference of 3.4° between these two azimuths is insignificant—a foot-long bread box only 17 feet away subtends an equal angle—it could be that the engraver was somewhat careless and erred by this amount.

To within the accuracy of the measurements, the direction of one of the lines (at 270.1°) corresponds with that of the setting equinoctial sun, at least the equinoctial sun as we define it today (See Ed Krupp's "Echoes of the Ancient Skies" for a discussion about another type of equinox.)

The purpose of the primary line at 322.1° remains a mystery; it would have pointed at an azimuth where neither the moon nor any planet ever set. Only one star of the first magnitude, Capella, set in that direction. Perhaps it marked the location of a briefly seen nova or supernova. However, Malcolm Clark lists only one "guest star" that would have set near the right location, and that occurred in 61 AD. (See his paper "Why Did the Polynesian Wander," delivered at the 1984 conference on Easter Island and Eastern Polynesia.)

If the surface was originally horizontal and the lines were intended to mark sunsets on special dates, the 14 (or 15) indicated directions would have pointed to the setting sun on 26 (or 28) different days of the year, since annually the sun swings back and forth like a great celestial pendulum. In principle, one could derive what these dates were, but until we have more precise ethnological information (if ever), there seems little reason to carry out this straightforward exercise at this time. It seems likely that Schanz was referring to these dates when he wrote in his letter that 30 months were indicated—and was able to discern one more line that I was.

Can we conclude from these measurements that the work was indeed a kind of calendar stone? No, because several crucial assumptions had to be made; but neither can we dismiss this possibility. We have, within acceptable limits, confirmed all of Schanz's contentions.

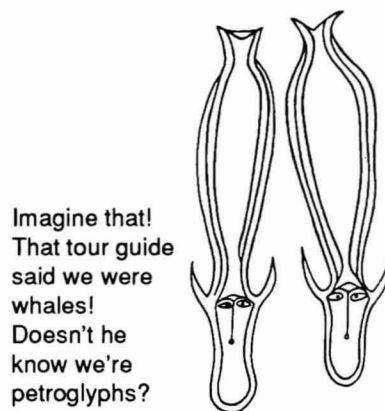
One of the more intriguing aspects of Schanz's report is his claim that he found lines on another rock pointing both to geographic north and magnetic north. If the pre-historic Rapanui knew about this subtlety, it would represent a most impressive accomplishment for a culture that knew no metals. This is not to say that there are no rocks on the island with magnetic properties; some are indeed strongly magnetized.

Perhaps the most important lesson to be learned from this episode is that through the mindless act of a crass money-grubbing contractor, several valuable archaeological treasures have disappeared forever. And when the airport runway was recently extended (1987), a substantial portion of Maunga Tararaina was chewed up and used for landfill. This prominent hill very possibly was an important equinox marker as seen from the astronomically oriented Ahu Huri A Urenga.

Other vanished relics include literally dozens of *pukao*, the red scoria topknots, many with petroglyphs, that were once found in great abundance at the quarry at Puna Pau. Last February we saw the most recent damage: two deep chain saw cuts in one of the score or so remaining *pukao*. We wonder if this will be the next topknot to disappear.

William Liller
Instituto Isaac Newton
Ministerio de Education de Chile

*Here we define azimuth angle as being 0° due north, increasing around through the east (90°), south 180° and west (270°)



Imagine that!
That tour guide
said we were
whales!
Doesn't he
know we're
petroglyphs?

Letters

Dear Editor,

When I was on Easter Island recently, I heard a number of people comment on how much they enjoyed the *Rapa Nui Journal* and what a valuable addition to the literature it was. However, on the same visit I also heard comments to the effect that the *RNJ* should provide a forum for airing the various conflicts of interests such as those existing between some of the islanders and the Chilean Government. Such conflicts will always exist and of course should be discussed openly in a full democratic manner, but this journal should not, in my opinion, become a sounding board for these different points of view. It should remain what it is and do what it has been doing so enjoyably: publishing brief, non-technical articles on recent scientific research, especially archaeological and anthropological investigations, news items from the island, and information about upcoming expeditions and related items. In other words, keep up the good work. *RNJ* is my favorite magazine.

Wm Liller
Viña del Mar, Chile

Dear Editor,

As a new subscriber to *RNJ*, I was surprised to find a lack of "human interest stories" in your newsletter. Like many of us who suddenly find ourselves walking around on Easter Island, I quickly fell in love with the warm islanders—even though I had originally been inspired by the cold *moai* and *ahu* and the fantastic stories of a secret island with a mysterious past.

I find your "scientific" articles informative, but since your publication is obviously not a scientific journal in the strict sense. I would love to hear more of the comings and goings, achievements and conflicts, joys and disappointments that occur on a day-to-day basis on Easter Island.

I can appreciate your reluctance to report on such things; your editorial policy is obviously inspired by the need for scientific diplomacy. Still, wouldn't it be possible to make some space available for open debate, perhaps a separate quarterly column or guest editorial, written

by a Rapanui—or someone in sympathy with their continued plight?

Along these lines, I would like to openly protest the VI Pacific Science Association Inter Congress in Chile this August. Attendance at these meetings constitutes support for the dictatorship which subjugates the Chilean peoples—the very same government which continues its inequitable colonial rule over the Rapanui culture. Give the land back to the families!

W. Norton Comstock
Fond du Lac, Wisconsin

Re: Club Med

Dear Editor,

This directorate has learned that in the last issue of the *RNJ* (Vol. 3, N° 1) it was stated that the Chilean authorities were considering the possibility of installing a private club with a gaming casino at Anakena.

Since no such request has been presented to the Council of National Monuments, the undersigned regrets that erroneous information has been disseminated, as the requisite national organizations were not consulted in this matter.

Also you could have learned of our public pronouncements declaring our opposition to a project of this type and its reflection on a site of archaeological and historical value, which is a national monument.

Thank you for printing this letter in *RNJ*.

Mario Arnello Romo
Director of Libraries,
Archives and Museums
Santiago, Chile

Editor's Note: We have received a similar notice through the Chilean Navy that "the plan to construct Club Med has been rejected..." The installation of tourist services will only be permitted in Hanga Roa.



From *El Mercurio de Valpo*, 21 June 1989...

"Supreme Court Recognizes the Consejo de Ancianos"

The President of the Human Rights Commission of Valparaíso, attorney Luis Bork, commented on the decision of the Supreme Court on the petition for protection of native Pascuenses. He stated that the Supreme Court's announcement on a petition for protection against a decree of the Maritime Governor of Hanga Roa, is a recognition of the existence of the *Consejo de Ancianos* and the moral authority which it possesses.

A similar commentary was made by Alberto Hotus, President of this same organization... Mr. Hotus said, "The *Dirección de Aeronáutica* established that we pascuenses have to pay a special fee in order to work at loading and unloading airplanes coming to the island, indicating clearly that they are discriminating against us."

Hotus also expressed that the Electoral Law made them elect a candidate they did not know, someone who never had visited the island, since I. de Pascua is inside the district of Valparaíso.

Last March the *Consejo de Ancianos* interposed a recourse of protection before the Appellate Court against a requirement disposed by the Maritime Governor of Hanga Roa which said that the islanders had to pay one Chilean *peso* for every cubic meter of sand that they extracted.

The Appellate Court did not give a verdict, but passed the resolution to the Supreme Court.

The Supreme Court decreed that Law No. 16.441, known as "*Ley Pascua*" (The Pascuan Law), provides the islanders with an exemption from all types of tribute or mortgage. The Court considered the Maritime Governor's decree "an illegal act that amounts to a loss, perturbation, or menace to the right of the property of the islanders..."

Two Notes on the Rapanui Language

W. Wilfried Schuhmacher

1. Among "Non-Polynesian" Rapanui Words

According to Thor Heyerdahl, archaeological dating of cultural levels from Polynesia show parallels in South America and coincide with the Mochica and Tiahuanaco civilizations. He especially stresses Easter Island parallels with those from Tiahuanaco and southern Peru.

To support this there should be lexical evidence for a non-Polynesian substratum language, but very few words were recorded before they were lost due to the fact that most of them were not even understood by the post-missionary islanders (Cf. Bergmann's identification of *lexikalisches* Sondergut, 1963:36; Langdon and Tryon, 1983:36; and Schuhmacher 1989 for a general discussion).

Likewise, evidence of an alien influence may be found in the following remark of Bergmann (1963:58): "*In keinem der von mir untersuchten polynesischen Dialekte lassen sich so viele Sonderentwicklungen nachweisen wie im Rapanui.*"

As one of these "creole" features of today's Rapanui, the construction of the type *te tangata kai* (the man-eating) instead of the Polynesian norm *te kai tangata* might be mentioned.

The speakers of the non-Polynesian and of the Polynesian language on Easter Island could be identified with the *Hanau Epe*—the builders of the huge statues and other stone structures (Heyerdahl's "Early Period Settlers") and with the later arriving (Polynesian) *Hanau Momoko* or *Hotu Matu'a* people. Both Bergmann (1963:36) and Langdon and Tryon (1983:45) define Rapanui (RAP) *ngo'e* (Milky Way) as "non-Polynesian;" the latter have as Proto-Polynesian (PPN) the form *kaniva*. However, there have been other forms also, as exemplified by Johnson and Mahelona (1975:134).

Hawaiian alone has five different terms to designate the galaxy, with *Hoku-noho-aupuni* (ruling star) as the most prominent one. And in Hawaiian, there also seems to lie the key that enables us to define RAP *ngo'e* as Polynesian. RAP *ngo'e* would presuppose a PPN form *ngo'e*, which in Hawaiian would have resulted

in *noe*, and *noe* is indeed found here; it means 'mist,' or 'rainspray.' Thus we may conclude that *ngo'e* (mist) underwent at a later time in RAP a semantic change so that it came to be used to designate the 'star mist' comprised of approximately 100 million stars.

Therefore, internal analysis of the "non-Polynesian" material should always precede the attempt to look for a contact between Polynesia and South America.

2. Rano Kao or Rano Kau?

It seems that the huge caldera at the southwest corner of Rapa Nui has been spelled in different ways. Katherine Routledge and Thor Heyerdahl both spell it as "Rano Kao." Thomas Barthel and the recent maps of the island spell it "Rano Kau." What would be the correct spelling? The answer to this question not only would contribute to Rapa Nui place-name orthography but, in addition, even more to the respective name's etymology. As for the generic term, Rapa Nui has two words for 'lake,' viz. *roto* which means a small lake or pond, especially near the sea, and *rano* which is used more specifically to designate a lake naturally formed in the crater of an extinct volcano. *Maunga* (mountain) on the other hand, can have the specific meaning of 'extinct volcano without a lake' (geologically preceding the lake) so that, naturally, *Maunga Eo* later was

replaced by *Rano Raraku*. As for the specific term, *Kau* may be identical with *kau* (swim); more appropriate, however, *Kao* could reflect eastern Polynesian *kao* (new shoot, sprout) so that *Rano Kao* literally would mean 'lake [of the] new shoots.' The land beside the lake formerly was used for the growing of food crops. It may not be excluded therefore that even *Rano Kao* has replaced an earlier *Maunga* name.

[Editor's note: Englert (1978) uses the spelling "Rano Kau." for this caldera, and he also lists the word 'kao' as meaning "costado; canto o borde; los labios menores de la vulva, las llamadas ninfas." *Kao kao*, on the other hand, refers to a perpendicular escarpment.]

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Study of Easter Island Children

An interesting study of Easter Island children has discounted social and environmental factors for middle-ear infections. This study, conducted by researchers from the Minnesota Ear, Head and Neck Clinic in Minneapolis, examined 249 children living on Easter Island in 1987.

The study concluded that those who had European ancestry were far more likely to have middle-ear infections than those of native ancestry. No native children had the infections, but 10 percent of those with mixed native and European heritage, and 11 percent of those with exclusive European heritage

had middle-ear infections. The researchers studied the Easter Island children because, unlike other groups that have been studied, they differed only in their ethnic heritage—all else was the same: "they all had the same socio-economic status... the same hospital, the same doctor, the same drugs, the same weather, the same everything."

The study provides the strongest evidence yet for the inheritance of a tendency to develop middle ear infections. It was published in the *Archives of Otolaryngology-Head and Neck Surgery*.

Canadian Scientists Visit Easter Island...

In 1964, *Maclean's Magazine* of Toronto Canada announced that two dozen Canadian scientists were going to visit Easter Island "to assemble a biological portrait of an ancient and isolated people, before civilization takes over." Below are excerpts from that article.

The Canadian team arrived the year the original construction began on the airstrip.

"Before that happens, the Canadians want to find out everything they can about Easter Islanders—where they came from, how they've been affected by generations of inbreeding, how they raise their children, what diseases they're prone to, and, if possible, why their ancestors carved the great stone idols that have made the island famous and baffled travellers for two hundred years.

"But the scientist will be more concerned with the islanders' bodies than with their hidden history. Because the inhabitants are so isolated, and because missionaries have kept fairly accurate records of births, deaths and marriages for the past hundred years, Easter Island is a made to order medical laboratory.

"Why, for instance, does a mysterious and sometimes fatal disease (the natives call it *cocongo*) sweep the island whenever the supply boat from Chile makes its annual visit? Obviously it must be caused by mainland organisms to which the islanders have had no chance to develop an immunity. The Canadian researchers hope to isolate the organism, and might even develop a vaccine that will protect the Islanders against it.

"And since the islanders have no fresh water supply (they trap rainwater and drink it whether it's brackish or not), the Canadian researchers expect to learn a lot about how water contamination affects human health.

"But for Dr. Stanley C. Skoryna, a McGill University professor of medical research who's been promoting the scheme for the past three years, the chief

value of the expedition will be the opportunity it affords for an integrated study of all the physical factors affecting a population—something that's possible with fruit flies or white rats, but seldom feasible with people.

"Accordingly, the expedition will include specialists in virus disorders, bacteriology, odontology and gastrointestinal diseases... for the islanders, it will be one of the strongest doses of civilization since Commodore Jacob Roggeveen sighted the island on Easter Sunday in 1722 and his trigger happy landing party killed twelve natives and wounded several other.

"The islanders will be pricked for blood samples; many of them will be photographed full-face and profile; their skulls will be x-rayed and their eyes tested; sociologists will visit most households to find out how they live in a pre-money economy (cigarettes are the main economy), who's who in the social pecking order, and what they believe about God, disease and the outside world.

"The researchers will spend two months on the island—living and working in twenty-four skid-mounted trailers that will be floated ashore on navy landing barges—and will assemble their data on tens of thousands of IBM file cards that will be fed through computers at McGill and the university of Toronto when the expedition returns home.

"Along with them will go thousands of blood sample and specimens, deep-frozen on the island with power supplied by portable generators. The huts, however, will probably stay behind to serve as the island's health center. So will the two solar stills that the researchers are bringing with them to desalinate sea water. Most of the remaining baggage will return to Canada, however, including twenty thousand test tubes, a powerful radio transmitter and a portable x-ray machine.

"All these things cost money—an

estimated \$500,000—and the expedition had gathered it from several sources...

"Dr. Skoryna has no qualms about descending on a primitive society with several hundred tons of modern technology in his luggage because, he says, "the tourists will soon be there anyway." Besides, for all its isolation, the island isn't that primitive. It has had a Roman Catholic mission since 1864, the Chilean government has set up a sheep ranch that grosses \$80,000 per year and, although there are no roads, there are five jeeps.

"But in case the natives prove wary, the researchers are taking along plenty of gifts: sewing machines, stone carving tools, razor blades, cosmetics and a small music library, including a record of Easter Island tribal chants that Dr. Skoryna borrowed from a Norwegian sea captain. And Dr. Helen Reid, a Toronto pediatrician who has to get on matey terms with Easter Island mothers so she can study their child-rearing customs, plans to establish rapport by giving the women home permanents. "There's nothing chattier," she observes. "than a beauty parlor." "

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Unfortunately, the study by the Canadians has never been published and the scientific knowledge gained there seems to be lost. You can get a small, personal glimpse at the Canadian Expedition by reading Helen Reid's *A World Away: A Canadian Adventure on Easter Island*. Toronto, Ryerson Press, 1965.

A second book is *...And Christmas Day on Easter Island*, by Carlotta Hacker, published by The Travel Book Club, London, in 1968. As a last minute recruit to the Canadian Medical Expedition, the then Miss Hacker presents some surprising observations—among them her views on the now famous "bloodless revolution," the 1965 "revolt by the islanders against the Chilean mismanagement of their island home."



Report on Efforts for Biological Control of Flies and other Insects on E. I.

Renato Ripa

In the seventies and early eighties, an abundance of flies plagued visitors to Easter Island. This prompted Chilean authorities to begin a study in 1982. Dr. Richard S. Patterson, from the USDA in Gainesville, Florida, visited the island and recommended several strategies centered around the biological control of these pests.

INIA, Instituto de Investigaciones Agropecuarias, at the Station based in La Cruz, V Region, Chile, conducted a control program which involved releasing millions of different kinds of tiny wasps

that live exclusively on the pupae of noxious flies.

Subsequent evaluations on the island showed that the tiny wasps were annihilating a large part of the fly population. It was also observed that the problem decreased, although the fraction that remains still causes some degree of annoyance.

Several other measures should also be taken in conjunction with this biological control program, although the polyphagous nature of the fly and shortages of funds for this work poses difficulties.

A similar approach is also being carried out on behalf of agricultural pests on the island, and this has also been fruitful. Several pests have been controlled to a significant degree which enables farmers to use less chemical pesticides, thus part of the local food production is free from pesticides.

Much work is still needed to instruct island farmers about the biological control of pests.

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Best, Simon. Here be Dragons. *Journal of the Polynesian Society*, Vol. 97 (3), 1988. Pp. 239-259. This provocative paper has much food for thought—for those who have ever pondered the strange legends concerning giant man-eating lizards in Polynesia. In both New Zealand and Hawaii, legends describe such creatures. Although we do not have "man-eating" lizards in the legends of Rapa Nui, the fear with which many old (and young!) islanders regard the gentle gecko (*moko*) is all out of proportion to the actual creature.

Dederen, François. Colère à Rapa Nui: Notre culture est à l'agonie. *La Depeche*, 5 April 1989, pg. 3.

— "Sauvetage des moai à Rapa Nui: le salut ne peut venir que d'une aide de l'UNESCO." *La Depeche*, 12 April 89, pg. 42.

Kirch, Patrick V. *Niutopotapu: The Prehistory of a Polynesian Chiefdom*. Burke Museum Publications, University of Washington, Seattle. This complete excavation report of the Tongan island of Niutopotapu is based on the extensive ethnographic, geomorphological, and archaeological evidence gathered in the Tongan Expedition of 1976. The analysis of the evidence is discussed within the broader context of Western Polynesian prehistory. Kirch's phase sequence for Niutopotapu is compared with what is known of prehis-

toric sequences in Fiji, Tongatapu, Samoa, and Futuna 'Uvea. Environmental dynamics and local evolution of the Niutopotapu production system over three millennia are discussed.

This publication can be ordered from Burke Museum Publications, DB-10; University of Washington, Seattle WA 98195. Price is U.S. \$25 plus \$2 for postage and handling.

Langdon, Robert. *Manioc*, A long concealed key to the enigma of Easter Island. *The Geographic Journal*, Vol. 154(3), 1988. pp. 324-336. This article claims that manioc, an American food plant, was on Easter Island by 1770. If true, the author claims that it strengthens the case for prehistoric American Indian influence on Easter Island and other islands of eastern Polynesia.

Oliver, Douglas L. 1989. *Oceania: The Native Cultures of Australia and the Pacific Islands*. 2 vols. Univ. of Hawai'i Press, Honolulu. \$90. Glenn Petersen of Baruch College writes in the *Library Journal*: "The [book's] vast scope has led to some unfortunate errors in the spelling of local terms and in the bibliography, but this work is none-the-less now the standard reference on the Pacific islands' people."

Sagnes, François. *Île de Pâques*. Editions Creaphis. 1988. 79 Rue du Faubourg, St. Martin, 75010 Paris, France. Price \$50 + mailing. This is a large format photographic book.

Schuhmacher, Wilfried. Fußball auch auf der «einsamsten Insel der Welt» [Soccer

also on the 'loneliest island of the world.'] *Der Fußball-Trainer*, 5 May 1987, pg.10.

Varawa, Joana McIntyre. 1989. *Changes in Latitude: An Uncommon Anthropology*. Atlantic Monthly Press, Little, Brown and Co. Kirkus Reviews says, "When Varawa calls this book 'uncommon,' she's being modest—the assured pace, unflinching eye and open heart make it worthy of comparison with the South Pacific writings of Margaret Mead and Robert Louis Stevenson." A story of life in the Fijis told by a woman in quest of humanity.

Zizka, Georg. *Jubaea chilensis (Molina) Baillon, die chilenische Honig-oder Coquitopalme*. Der Palmengarten 52, Jahrgang 1988. Frankfurt am Main.

Movies

Les Moai de l'île de Pâques. 1988. In French and English, 70 minutes. VHS, Betamax, Video 8, PAL, SECAM, NTSC Hi Fi. Contact Jean Marc Houdmont, Chaussee de Waterloo 466, 5002 Namur, Belgium. \$35.

A reader in France tells us of three video cassettes now available in French. Unfortunately the information we received was limited. With their titles in English translation, the videos are:

The Mysteries of Easter Island. C. Zuber. 1980. Ed.: CEDIL.

The Testament of Easter Island. P. Cousteau. 1978. Ed.: Warner House.

The Mystery of the Giants of Easter Island. A. Decaux. 1988. Ed.: Television T.F.1.

Expeditions and Exhibitions

Bridge or Barrier?

The VI Pacific Science Association Inter Congress will take place in Viña del Mar, Chile, from 7-10 August 1989. The theme is "The Pacific: Bridge or Barrier?" It is being organized by the Institute of International Studies of the University of Chile and sponsored by the Council of Rectors of Chilean Universities. There are to be pre- and post-congress tours around Chile, including excursions to Easter Island and Antarctica.

For information regarding this meeting, contact: Professor Francisco Orrego Vicuna, Chairman of Organizing Committee, P.O. Box 14187, Sec. 21, Santiago, CHILE.

French Geological Expedition Planned

A project to study the geology of Easter Island is being planned for July of this year by *Cercle d'Etudes sur L'île de Pâques et La Polynésie*. This will be their third scientific expedition to the island. For information, contact A. Valenta, 6-297 Le Parc de Petit Bourg, 91000 Evry, France.

Private Jet Expeditions

Private Jet Expeditions has several trips that will be touching down at Easter Island in 1990. This tour has its own deluxe jet airplane, remodeled to accommodate 70 first class passengers. For information, write Private Jet Expeditions, 701 5th Ave. Seattle, WA 98104, USA

Symposium on the Arts of the Pacific

The Pacific Arts Association's 4th International Symposium on the Arts of the Pacific will take place in Honolulu from 6-12 August 1989.

"Artistic Heritage in the Changing Pacific" will be the main subject of discussion. For information contact Pacific Arts Association, Honolulu Academy of Arts, 900 S. Beretania St., Honolulu, HI 96814 USA.

Senkenberg Easter Island Exhibit

The Easter Island Exhibit at the Senkenberg Museum in Frankfurt, Germany, opened on 5 April and will continue until

3 September. It is sponsored by the society "Deutsch-Ibero-Amerikanische Gesellschaft."

There are 160 items from 44 collections displayed at this exposition. Aside from the numerous artifacts of stone and wood, the exhibits also include 4 *rongo rongo* tablets, three examples of plumed headdresses, and 4 *tapa* figures.

Castings of the facade of the *ahu* at Vinapu, along with the two *moai* from Rano Raraku are on display. (See *RNJ* Vol.2(2) and 2(3) for comments on these castings.)

A beautiful catalog (in German) accompanies the exhibit; it has 350 pages with 165 illustrations and is available for 35 DM + 5 Marks for shipment. Write to Deutch Ibero Amerikanische Gesellschaft E.V., Grafstraße 83, 6000 Frankfurt/Main, Germany.

Look for a review of this exhibition in the Fall Issue.

Far Horizons Tours

Far Horizons Tours has two groups heading for Easter Island: the first is from October 26 to November 5; the second is from March 8 to 18. Both have an optional side trip to northern Chile which can be added on, if desired. These are in-depth tours of Easter Island's archaeological sites, with many other special features such as a traditional native *umu* (earth oven) and ample opportunities to meet and interact with the local natives. For further information: Far Horizons, P.O.Box 1529, San Anselmo, CA 94960; phone (415)457-4575.

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